

Morbidity and Mortality



U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE PUBLIC HEALTH SERVICE
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INTERNATIONAL NOTES
MARBURG VIRUS DISEASE - South Africa

On February 15, a 20-year-old man from Australia reported to a hospital in Johannesburg, South Africa, complaining of muscle pains, backache, headache, nausea, and chills. Malaria smears were negative. His clinical condition rapidly worsened, with continuing high fever and slow pulse. On February 17, the first signs of a hemorrhagic state appeared with "coffee grounds" vomitus, diarrhea and melena, bleeding from needle punctures, and indications of disseminated intravascular coagulopathy with bleeding from all the mucous membranes. The patient died on February 18.

His companion, an 18-year-old woman, was admitted to the hospital on February 22 with high fever. Because Lassa fever was suspected and in view of the woman's rapidly de-

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teriorating condition, a unit of Lassa fever convalescent plasma was administered on February 24. There was no immediate improvement, but her temperature fell to normal on the morning of February 27. She showed gradual signs of improvement over the next few days and has now recovered.

On the morning of February 28, an attending nurse reported sick with muscle pains and high fever. She was de-

TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
(Cumulative totals include revised and delayed reports through previous weeks)

DISEASE	WEEK ENDING		MEDIAN 1970-1974	CUMULATIVE, FIRST 10 WEEKS		
	March 8, 1975	March 9, 1974		1975	1974	MEDIAN 1970-1974
Aseptic meningitis	21	29	31	345	342	351
Brucellosis	2	4	2	25	17	17
Chickenpox	4,532	4,909	--	36,220	35,669	--
Diphtheria	22	9	5	88	26	41
Encephalitis	Primary	13	22	124	159	164
	Post-Infectious	1	2	36	37	45
Hepatitis, Viral	Type B	203	195	145	2,008	1,648
	Type A	695	825	1,050	6,906	8,484
	Type unspecified	168	191		1,455	1,535
Malaria	4	3	21	50	34	321
Measles (rubeola)	742	611	949	3,540	4,978	6,977
Meningococcal infections, total	38	54	54	352	302	354
Civilian	37	53	53	342	298	342
Military	1	1	1	10	4	12
Mumps	1,522	2,210	2,288	13,986	16,600	20,979
Pertussis	12	18	--	235	255	--
Rubella (German measles)	455	418	1,138	2,653	2,402	5,686
Tetanus	--	--	--	11	8	11
Tuberculosis	631	539	--	5,426	5,132	--
Tularemia	--	4	2	9	21	21
Typhoid fever	7	12	3	43	68	49
Typhus, tick-borne (Rky. Mt. spotted fever)	--	--	--	10	15	6
Veneral Diseases:						
Gonorrhea (Civilian)	16,758	16,057	--	175,729	160,574	--
(Military)	714	520	--	5,950	5,200	--
Syphilis, primary and secondary (Civilian)	459	466	--	4,922	4,656	--
(Military)	4	9	--	67	87	--
Rabies in animals	39	--	--	352	--	--

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax:	--	Poliomyelitis, total:	1
Botulism: NYC 1, Alaska 3	7	Paralytic:	1
Congenital rubella syndrome:	6	Psittacosis: *	6
Leprosy: Calif. 2, Hi. 2	30	Rabies in man:	1
Leptospirosis: * Fla. 1	8	Trichinosis: Ups NY 5, Ohio 1, Va. 1	20
Plague:	1	Typhus, murine:	2

*Delayed reports: Leptospirosis: (1974) Pa. 2, Ark. 5
Psittacosis: (1974) Pa. 2

MARBURG VIRUS – Continued

scribed as being critically ill through March 6. Her fever dropped on March 7, and she is now much improved.

Autopsy specimens from the fatal case and blood specimens from the female companion arrived at CDC on Saturday, March 1. Fluorescent antibody tests of Vero cell cultures for Lassa fever virus were negative on the 2nd and 3rd day after inoculation with blood specimens from the 2 cases. On the 4th day, electron microscopic examination of the Vero cell cultures and liver from the fatal case revealed particles characteristic of Marburg virus (Figures 1 and 2). The antigenic similarity of this agent to Marburg virus was confirmed by indirect fluorescent antibody tests with specific antisera.

(Reported by James HS Gear, MD, Isabel Spence, MD, Ms Kirsh, Ms Jacqueline Ryan, the Poliomyelitis Research Foundation, Johannesburg; Professor Thomas Bothwell, MD, John Gear, MD, Anthony Gear, MD, Graham Cassell, MD, Jack Davies, MD, Johannesburg Hospital and Johannesburg Fever Hospital; and the Virology Division, Bureau of Laboratories, CDC.)

Editorial Note

Marburg virus disease was first recognized in the late summer of 1967 when several patients were admitted to Marburg University Hospital (Germany) with a severe hemor-

rhagic disease. Several other cases were also seen concurrently in Frankfurt/Main and still others several weeks later in Belgrade, Yugoslavia. In all, 31 people were ill, and 7 died; 25 cases had had previous contact with blood or tissues of the vervet monkey, *Cercopithecus aethiops*, whereas 6 cases had had contact with persons ill with Marburg virus (1,2,3).

Extensive investigations have failed to reveal the natural host for Marburg virus. A 100% fatality rate for experimentally-infected vervet monkeys suggests that these animals which transmitted the virus to man in 1967 were probably accidental hosts.

In the present case, the source of the disease is not known. The man and his companion had hitch-hiked around southern Africa for several months. They had visited sites in Rhodesia during the 10 days prior to returning to South Africa on February 10, 2 days before the man's first signs of illness. The girl denied contact with any monkeys, but did report playing with several native animals. Attempts to retrace their itinerary during the first 2 weeks of February are now being made.

References

1. Siegert R: Marburg virus. *Virol Monogr* 11:98, 1972
2. Martini GA, Seigert R: Marburg Virus Disease. New York, Springer-Verlag, 1971
3. Center for Disease Control: Morbidity and Mortality Weekly Rep 16(36):301-302, 9 Sept 1967



Figure 1. Marburg-like virus from Vero cells inoculated 4 days previously with blood specimen from the fatal case. The inner cross-striated structures and covering envelope of the twisted filamentous organism are indistinguishable from those of Marburg virus isolation in 1967. Negative contrast preparation at magnification of x238,000.

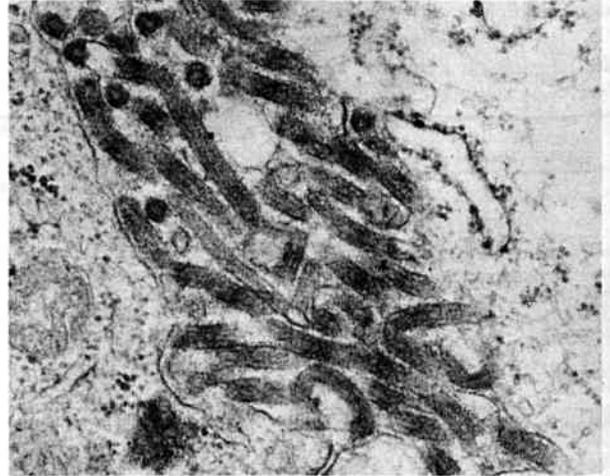


Figure 2. Ultra-thin section of Marburg-like virus particles at the edge of a Vero cell 4 days after inoculation with a liver specimen from the fatal case. The long filamentous structures are unlike any other known virus, particularly in their detailed organization. Magnification is x50,000.

EPIDEMIOLOGIC NOTES AND REPORTS HUMAN PLAGUE CASE – Bernalillo County, New Mexico

On February 11, 1975, an 11-year-old boy from Albuquerque had the onset of fever, headache, myalgia, and malaise. The following day he developed shaking chills and a painful swelling in the right axilla. The boy was hospitalized on February 13; and examination revealed a temperature of 38.3° C, a painful, firm 10 cm mass in the right axilla, and a small, healing laceration on the right forearm. A resolving subungual hematoma and partially evulsed finger nail were

noted on the right middle digit. A peripheral white blood cell count was 17,700 with 65% polymorphonuclear leukocytes, 23% band forms, 6% lymphocytes, and 6% monocytes. A tularemia agglutination test and monospot test were both negative. The differential diagnoses included plague, tularemia, other bacterial causes of lymphadenitis, and cat scratch fever. An axillary lymph node aspirate was performed, blood

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**TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDING MARCH 8, 1975 AND MARCH 9, 1974 (10th WEEK)**

AREA	ASEPTIC MENIN- GITIS	BRUCEL- LOSIS	CHICKEN- POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS, VIRAL			MALARIA	
						Primary: Arthropod- borne and Unspecified		Post In- fectious	Type B	Type A	Type Unspecified		
						1975	1974	1975	1975	1975	1975		
UNITED STATES	21	2	4,532	22	88	13	22	1	203	695	168	4	50
NEW ENGLAND	-	-	385	-	-	-	-	-	14	14	16	1	3
Maine *	-	-	-	-	-	-	-	-	-	-	-	-	-
New Hampshire *	-	-	24	-	-	-	-	-	-	2	-	-	-
Vermont	-	-	12	-	-	-	-	-	6	1	-	-	-
Massachusetts	-	-	112	-	-	-	-	-	2	4	16	1	2
Rhode Island	-	-	78	-	-	-	-	-	-	2	-	-	-
Connecticut	-	-	159	-	-	-	-	-	6	5	-	-	1
MIDDLE ATLANTIC	5	-	168	1	1	5	-	-	25	84	34	2	7
Upstate New York	-	-	22	-	-	-	-	-	4	33	3	-	3
New York City	1	-	141	-	-	-	-	-	1	22	-	1	3
New Jersey *	4	-	NN	-	-	1	-	-	13	19	28	1	1
Pennsylvania *	-	-	5	1	1	4	-	-	7	10	3	-	-
EAST NORTH CENTRAL	-	-	1,860	-	1	3	8	-	30	147	7	-	1
Ohio *	-	-	253	-	-	-	4	-	3	23	-	-	-
Indiana	-	-	218	-	-	-	-	-	-	9	-	-	-
Illinois	-	-	-	-	-	1	1	-	9	31	3	-	1
Michigan	-	-	838	-	1	2	3	-	14	69	4	-	-
Wisconsin	-	-	551	-	-	-	-	-	4	15	-	-	-
WEST NORTH CENTRAL	-	2	777	-	-	1	5	-	20	42	8	-	2
Minnesota *	-	-	33	-	-	-	-	-	10	13	-	-	-
Iowa	-	2	344	-	-	1	5	-	1	6	1	-	-
Missouri *	-	-	147	-	-	-	-	-	6	2	7	-	2
North Dakota	-	-	11	-	-	-	-	-	-	1	-	-	-
South Dakota	-	-	-	-	-	-	-	-	-	2	-	-	-
Nebraska	-	-	1	-	-	-	-	-	-	-	-	-	-
Kansas	-	-	241	-	-	-	-	-	3	18	-	-	-
SOUTH ATLANTIC	3	-	286	-	-	1	2	-	34	111	30	-	6
Delaware	-	-	6	-	-	-	-	-	2	2	1	-	-
Maryland	-	-	24	-	-	-	1	-	6	11	3	-	-
District of Columbia	-	-	1	-	-	-	-	-	2	1	-	-	-
Virginia	-	-	9	-	-	-	-	-	7	17	3	-	4
West Virginia	-	-	208	-	-	-	-	-	-	1	2	-	-
North Carolina	-	-	NN	-	-	-	-	-	6	11	1	-	-
South Carolina	-	-	38	-	-	-	-	-	1	8	10	-	-
Georgia	-	-	-	-	-	-	-	-	-	15	-	-	-
Florida	3	-	-	-	-	1	1	-	10	45	10	-	2
EAST SOUTH CENTRAL	5	-	191	-	-	1	-	1	12	41	-	-	5
Kentucky	1	-	125	-	-	-	-	-	2	16	-	-	2
Tennessee	2	-	NN	-	-	1	-	1	3	18	-	-	-
Alabama	1	-	57	-	-	-	-	-	6	3	-	-	2
Mississippi *	1	-	9	-	-	-	-	-	1	4	-	-	1
WEST SOUTH CENTRAL	4	-	459	-	1	2	3	-	3	100	17	1	6
Arkansas	-	-	118	-	-	-	-	-	-	8	1	-	1
Louisiana	-	-	NN	-	-	-	-	-	-	6	-	-	-
Oklahoma	-	-	53	-	-	2	2	-	3	28	8	-	1
Texas	4	-	288	-	1	-	1	-	-	58	8	1	4
MOUNTAIN	-	-	89	-	6	-	1	-	10	47	37	-	10
Montana *	-	-	8	-	-	-	-	-	1	7	1	-	-
Idaho	-	-	-	-	-	-	-	-	-	4	7	-	-
Wyoming	-	-	1	-	-	-	-	-	1	1	-	-	-
Colorado	-	-	72	-	-	-	1	-	4	6	10	-	8
New Mexico	-	-	6	-	1	-	-	-	1	8	-	-	-
Arizona	-	-	-	-	5	-	-	-	-	10	8	-	2
Utah	-	-	-	-	-	-	-	-	3	7	6	-	-
Nevada	-	-	2	-	-	-	-	-	-	4	-	-	-
PACIFIC	4	-	317	21	79	-	3	-	55	109	24	-	-
Washington	-	-	227	20	77	-	-	-	11	18	12	-	1
Oregon	-	-	-	-	-	-	1	-	4	14	3	-	-
California *	4	-	-	-	1	-	2	-	38	69	9	-	8
Alaska	-	-	10	1	1	-	-	-	1	5	-	-	-
Hawaii	-	-	80	-	-	-	-	-	1	3	-	-	1
Guam *	-	-	-	-	-	-	-	-	-	-	-	-	-
Puerto Rico	-	-	5	-	-	-	-	-	2	9	-	-	1
Virgin Islands	-	-	-	-	-	-	-	-	-	-	-	-	-

*Delayed reports: Aseptic Meningitis: Pa. delete 3; (1974) Minn. 1
 Brucellosis: (1974) Pa. 1, Minn. 1
 Chickenpox: Me. 12, N.H. 9, Calif. 52, Guam 3
 Encephalitis, primary: N.H. delete 1; (1974) N.J. 1, Minn. 1
 Encephalitis, post: N.H. 1

Hepatitis B: Ohio 1; (1974) Pa. 5
 Hepatitis A: Me. 12, Ohio delete 1, Miss. delete 1, Mont. delete 1,
 Guam 4; (1974) Pa. 6, Mo. 1
 Hepatitis unspecified: Guam 6; (1974) Pa. 2

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TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDING MARCH 8, 1975 AND MARCH 9, 1974 (10th WEEK) - Continued

AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS, TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1975	Cumulative		1975	Cumulative		1975	Cum. 1975	1975	1975	Cum. 1975	Cum. 1975
		1975	1974		1975	1974						
UNITED STATES . . .	742	3,540	4,978	38	352	302	1,522	13,986	12	455	2,653	11
NEW ENGLAND	3	36	293	4	20	21	76	600	-	92	458	-
Maine *	-	2	10	1	2	-	-	11	-	-	15	-
New Hampshire *	1	13	159	-	1	6	1	8	-	5	210	-
Vermont	-	-	1	-	-	-	-	1	-	12	13	-
Massachusetts	2	12	66	1	6	6	4	85	-	66	184	-
Rhode Island	-	2	40	-	2	3	51	286	-	-	4	-
Connecticut	-	7	17	2	9	6	20	209	-	9	32	-
MIDDLE ATLANTIC	31	241	1,780	2	31	39	63	728	1	38	205	1
Upstate New York	3	58	23	-	11	12	37	328	-	1	24	-
New York City	6	28	84	2	5	10	11	137	1	7	38	1
New Jersey	21	108	1,423	-	4	14	7	92	-	24	95	-
Pennsylvania	1	47	250	-	11	3	8	171	-	6	48	-
EAST NORTH CENTRAL	226	1,550	2,023	10	48	30	659	6,073	1	95	714	-
Ohio	6	29	923	1	8	8	75	622	-	15	49	-
Indiana	21	101	67	-	1	2	91	685	-	19	109	-
Illinois	37	335	331	2	9	4	80	509	-	3	54	-
Michigan	145	716	579	6	24	10	269	2,881	1	43	359	-
Wisconsin	17	369	123	1	6	6	144	1,376	-	15	143	-
WEST NORTH CENTRAL	305	684	144	-	23	15	172	923	-	28	169	1
Minnesota	-	-	76	-	3	5	2	8	-	-	3	-
Iowa	96	105	4	-	4	4	29	292	-	-	3	-
Missouri *	3	35	19	-	12	3	21	113	-	-	18	1
North Dakota *	38	59	13	-	-	1	48	203	-	2	39	-
South Dakota	-	26	1	-	-	-	-	1	-	-	2	-
Nebraska	12	161	1	-	1	-	-	4	-	-	4	-
Kansas	156	298	30	-	3	2	72	302	-	26	100	-
SOUTH ATLANTIC	7	50	169	3	61	57	72	858	2	18	200	2
Delaware	-	-	2	-	1	3	-	4	-	2	5	-
Maryland	-	-	2	1	4	9	2	26	-	-	-	-
District of Columbia	-	-	-	-	3	-	1	23	-	-	-	-
Virginia *	1	7	10	-	8	10	8	179	-	4	18	-
West Virginia	6	35	47	-	-	2	26	324	-	6	33	-
North Carolina	-	-	1	-	10	11	12	12	-	-	1	-
South Carolina	-	-	10	-	8	4	-	18	-	6	125	1
Georgia	-	-	1	-	7	4	-	-	-	-	-	-
Florida	-	8	96	2	20	14	23	272	2	-	18	1
EAST SOUTH CENTRAL	4	39	34	5	52	31	119	1,375	1	42	177	1
Kentucky	4	29	26	2	19	13	49	722	-	13	47	1
Tennessee	-	7	-	1	18	16	52	497	-	29	124	-
Alabama	-	-	1	2	10	2	13	108	-	-	4	-
Mississippi	-	3	7	-	5	-	5	48	1	-	2	-
WEST SOUTH CENTRAL	12	64	66	7	69	64	128	1,127	2	30	189	2
Arkansas*	-	2	4	-	4	4	-	13	-	-	-	-
Louisiana	-	-	6	1	16	10	3	136	-	8	71	-
Oklahoma	1	11	8	2	7	7	5	38	1	1	55	-
Texas	11	51	48	4	42	43	120	940	1	21	63	2
MOUNTAIN	19	230	171	2	11	7	11	135	2	60	141	-
Montana	-	-	110	-	2	1	-	2	-	57	109	-
Idaho	1	3	38	-	-	1	-	2	-	1	5	-
Wyoming	-	-	-	-	-	-	-	-	-	-	-	-
Colorado	18	224	7	2	5	-	7	63	-	-	14	-
New Mexico	-	1	12	-	3	2	1	8	2	-	5	-
Arizona	-	1	3	-	1	2	-	-	-	-	1	-
Utah	-	-	-	-	-	1	-	30	-	2	4	-
Nevada	-	1	1	-	-	-	3	30	-	-	3	-
PACIFIC	135	646	298	5	37	38	222	2,167	3	52	400	4
Washington	19	29	20	1	4	5	163	1,179	3	13	105	-
Oregon	-	47	-	-	-	6	7	127	-	1	62	-
California	116	570	277	4	33	25	50	845	-	38	230	4
Alaska	-	-	-	-	-	2	-	9	-	-	-	-
Hawaii	-	-	1	-	-	-	2	7	-	-	3	-
Guam *	-	2	1	-	-	-	-	7	-	-	-	-
Puerto Rico	7	113	121	-	1	-	7	188	-	1	14	3
Virgin Islands	-	2	6	-	-	-	-	17	-	1	2	-

*Delayed reports: Measles: Va. delete 1
Meningococcal infection: Mo. 2, Ark. 3
Mumps: Guam 1
Rubella: Me. 2, N.H. 11, N.D. 20

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**TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
FOR WEEKS ENDING MARCH 8, 1975 AND MARCH 9, 1974 (10th WEEK) - Continued**

AREA	TUBERCULOSIS		TULA-REMIA	TYPHOID FEVER		TYPHUS-FEVER TICK-BORNE (Rky. Mt. spotted fever)		VENEREAL DISEASES (Civilian Cases Only)					RABIES IN ANIMALS	
	1975	Cum. 1975	Cum. 1975	1975	Cum. 1975	1975	Cum. 1975	GONORRHEA		SYPHILIS (Pri. & Sec.)		Cum. 1975		
								1975	Cumulative 1974	1975	Cumulative 1974			
UNITED STATES	631	5,426	9	7	43	-	10	16,758	175,729	160,574	459	4,922	4,656	352
NEW ENGLAND	26	203	-	1	6	-	-	423	4,802	4,084	16	171	178	9
Maine	3	17	-	-	-	-	-	-	282	290	-	3	8	8
New Hampshire *	5	12	-	-	-	-	-	14	149	114	-	6	2	-
Vermont	-	1	-	-	-	-	-	-	82	118	-	3	1	-
Massachusetts	9	99	-	1	3	-	-	283	2,395	1,893	7	111	126	-
Rhode Island	2	25	-	-	-	-	-	26	371	328	-	2	3	-
Connecticut	7	49	-	-	3	-	-	100	1,523	1,341	9	46	38	1
MIDDLE ATLANTIC	113	952	1	2	6	-	-	2,347	21,394	20,041	60	941	985	8
Upstate New York	10	131	1	-	2	-	-	378	4,130	3,755	-	103	98	7
New York City	46	428	-	1	3	-	-	1,017	9,243	8,326	45	556	559	-
New Jersey	21	180	-	1	1	-	-	423	2,816	3,005	6	134	163	-
Pennsylvania	36	213	-	-	-	-	-	529	5,205	4,955	9	148	165	1
EAST NORTH CENTRAL	93	858	-	1	8	-	1	2,501	29,872	25,585	52	394	390	7
Ohio *	25	250	-	-	1	-	1	615	8,257	7,108	11	87	50	-
Indiana	16	129	-	-	-	-	-	67	2,614	2,261	1	28	37	-
Illinois	25	212	-	1	5	-	-	866	9,975	7,829	30	193	202	-
Michigan *	27	254	-	-	2	-	-	648	6,111	6,167	7	62	81	-
Wisconsin	-	13	-	-	-	-	-	305	2,915	2,220	3	24	20	7
WEST NORTH CENTRAL	13	171	2	-	1	-	-	848	8,461	8,183	14	115	105	96
Minnesota	6	28	-	-	1	-	-	298	1,745	1,823	1	12	10	30
Iowa	1	11	-	-	-	-	-	16	940	1,191	-	5	9	16
Missouri	4	87	1	-	-	-	-	216	3,149	2,554	7	69	68	11
North Dakota	-	-	-	-	-	-	-	16	145	140	-	3	-	28
South Dakota *	1	8	-	-	-	-	-	37	372	361	-	2	1	-
Nebraska	-	6	-	-	-	-	-	64	734	650	-	3	2	2
Kansas	1	31	1	-	-	-	-	201	1,376	1,464	6	21	15	9
SOUTH ATLANTIC	162	1,242	4	1	2	-	6	4,710	43,938	39,751	170	1,556	1,484	53
Delaware	-	21	-	-	-	-	-	82	610	603	2	13	15	-
Maryland	26	187	-	-	-	-	-	696	4,940	3,575	14	119	164	-
District of Columbia	12	86	-	-	-	-	-	275	2,999	3,996	13	128	131	-
Virginia	25	163	2	1	1	-	-	402	4,616	3,623	11	125	184	37
West Virginia	8	57	-	-	-	-	-	83	537	476	2	4	5	1
North Carolina	19	177	-	-	1	-	6	379	6,422	5,313	2	205	157	1
South Carolina	11	52	2	-	-	-	-	565	4,088	4,221	10	123	122	1
Georgia	14	184	-	-	-	-	-	837	7,916	7,040	35	218	235	9
Florida	47	315	-	-	-	-	-	1,391	11,810	10,904	81	621	471	4
EAST SOUTH CENTRAL	44	461	1	-	2	-	2	1,410	14,022	13,676	18	217	243	46
Kentucky *	5	85	-	-	1	-	1	166	1,760	1,671	2	30	55	38
Tennessee	15	161	1	-	-	-	-	608	5,746	5,385	6	85	94	3
Alabama	18	159	-	-	-	-	1	281	3,638	3,866	9	60	46	5
Mississippi	6	56	-	-	1	-	-	355	2,878	2,754	1	42	48	-
WEST SOUTH CENTRAL	104	605	1	-	-	-	1	1,915	22,244	21,352	43	467	427	98
Arkansas *	8	85	1	-	-	-	-	77	2,167	2,335	1	7	21	12
Louisiana *	7	95	-	-	-	-	-	248	3,935	4,612	7	111	126	3
Oklahoma	17	65	-	-	-	-	1	173	1,933	1,618	-	24	30	32
Texas	72	360	-	-	-	-	-	1,417	14,209	12,787	35	325	250	51
MOUNTAIN	11	109	-	-	2	-	-	665	6,605	5,675	8	120	113	14
Montana *	1	2	-	-	-	-	-	36	401	342	-	3	-	6
Idaho	-	4	-	-	-	-	-	40	333	366	-	2	-	-
Wyoming	1	4	-	-	1	-	-	7	162	137	-	1	1	-
Colorado	-	-	-	-	-	-	-	197	1,861	1,635	2	28	24	-
New Mexico	2	26	-	-	-	-	-	66	1,093	788	1	31	22	6
Arizona	7	57	-	-	1	-	-	205	1,738	1,473	4	44	44	2
Utah	-	2	-	-	-	-	-	35	383	277	-	1	5	-
Nevada	-	14	-	-	-	-	-	79	634	657	1	10	17	-
PACIFIC	65	825	-	2	16	-	-	1,939	24,391	22,227	78	941	731	21
Washington	6	68	-	-	-	-	-	239	2,255	2,133	16	56	27	-
Oregon	5	27	-	-	-	-	-	80	2,085	1,914	5	23	18	-
California	39	622	-	2	16	-	-	1,521	18,963	17,275	56	851	679	19
Alaska	-	6	-	-	-	-	-	41	635	474	-	-	-	2
Hawaii	15	102	-	-	-	-	-	58	453	431	1	11	7	-
Guam *	-	22	-	-	-	-	-	-	79	-	-	1	-	-
Puerto Rico	7	80	-	-	-	-	-	76	609	619	16	137	190	11
Virgin Islands	-	3	-	-	-	-	-	6	35	141	1	9	13	-

*Delayed reports: Tuberculosis: N.H. delete 3, Mich. delete 40, Guam 1; (1974) Ohio delete 2
 Typhoid: Ark. delete 1
 Gonorrhoea: S.D. delete 1 Mil., Ky. 90 Mil., La. delete 5, Guam 9
 Syphilis: N.H. 1, Ky. 2 Mil., Mont. 3

TABLE IV. DEATHS IN 121 UNITED STATES CITIES FOR WEEK ENDING MARCH 8, 1975

(By place of occurrence and week of filing certificate. Excludes fetal deaths)

Area	All Causes					Pneumonia and Influenza All Ages	Area	All Causes					Pneumonia and Influenza All Ages
	All Ages	65 years and over	45-64 years	25-44 years	Under 1 year			All Ages	65 years and over	45-64 years	25-44 years	Under 1 year	
NEW ENGLAND	784	491	187	42	37	63	SOUTH ATLANTIC	1,372	780	393	84	63	65
Boston, Mass.	224	132	64	11	8	22	Atlanta, Ga.	175	96	56	11	11	7
Bridgeport, Conn.	44	22	14	3	—	6	Baltimore, Md.	265	138	79	20	16	8
Cambridge, Mass.	31	26	4	1	—	7	Charlotte, N. C.	54	16	24	3	5	—
Fall River, Mass.	47	36	7	4	—	2	Jacksonville, Fla.	103	58	31	4	3	3
Hartford, Conn.	48	33	14	1	—	—	Miami, Fla.	133	77	34	11	4	4
Lowell, Mass.	42	28	8	2	—	3	Norfolk, Va.	73	44	20	3	4	6
Lynn, Mass.	24	18	5	1	—	1	Richmond, Va.	92	52	33	4	1	10
New Bedford, Mass.	34	24	6	2	1	1	Savannah, Ga.	36	23	6	3	3	1
New Haven, Conn.	90	41	17	8	20	5	St. Petersburg, Fla.	94	74	11	4	4	4
Providence, R. I.	54	33	17	1	1	6	Tampa, Fla.	92	60	26	1	1	8
Somerville, Mass.	8	5	3	—	—	—	Washington, D. C.	207	107	64	19	10	10
Springfield, Mass.	52	34	14	3	1	2	Wilmington, Del.	48	35	9	1	1	4
Waterbury, Conn.	32	22	4	3	3	—	EAST SOUTH CENTRAL	661	358	193	43	27	42
Worcester, Mass.	54	37	10	2	3	8	Birmingham, Ala.	97	41	28	11	10	2
MIDDLE ATLANTIC	3,677	2,267	937	230	114	183	Chattanooga, Tenn.	67	33	22	2	3	6
Albany, N. Y.	49	32	9	3	3	1	Knoxville, Tenn.	42	20	18	1	3	—
Allentown, Pa.	33	21	6	1	1	7	Louisville, Ky.	113	70	27	5	7	16
Buffalo, N. Y.	150	88	46	4	7	12	Memphis, Tenn.	134	78	34	11	1	6
Camden, N. J.	53	31	19	2	—	8	Mobile, Ala.	59	34	15	7	1	3
Elizabeth, N. J.	41	27	9	4	—	3	Montgomery, Ala.	29	19	9	—	1	—
Erie, Pa.	46	23	15	1	6	6	Nashville, Tenn.	120	63	40	6	1	9
Jersey City, N. J.	68	43	19	1	—	3	WEST SOUTH CENTRAL	1,179	679	321	74	43	55
Newark, N. J.	80	38	21	15	2	6	Austin, Tex.	45	29	11	2	—	6
New York City, N. Y. †	1,835	1,147	444	127	48	88	Baton Rouge, La.	39	18	15	2	2	4
Paterson, N. J.	41	20	13	4	—	2	Corpus Christi, Tex.	27	16	6	1	1	2
Philadelphia, Pa.	692	408	188	52	29	5	Dallas, Tex.	152	80	43	18	6	5
Pittsburgh, Pa.	186	107	56	6	10	15	El Paso, Tex.	39	21	8	2	5	3
Reading, Pa.	44	34	9	—	—	6	Fort Worth, Tex.	94	53	28	5	2	1
Rochester, N. Y.	129	87	31	1	2	9	Houston, Tex.	287	153	93	14	10	5
Schenectady, N. Y.	29	22	5	1	—	2	Little Rock, Ark.	50	33	11	1	2	4
Scranton, Pa.	25	20	5	—	—	1	New Orleans, La.	124	77	29	6	5	2
Syracuse, N. Y.	82	55	16	6	5	3	San Antonio, Tex.	169	91	45	15	7	6
Trenton, N. J.	32	22	8	1	—	1	Shreveport, La.	68	44	15	6	2	5
Utica, N. Y.	26	20	5	—	1	2	Tulsa, Okla.	85	64	17	2	1	12
Yonkers, N. Y.	36	22	13	1	—	3	MOUNTAIN	588	349	144	37	30	25
EAST NORTH CENTRAL	2,398	1,395	688	151	75	92	Albuquerque, N. Mex.	68	35	18	9	4	9
Akron, Ohio	58	34	14	6	2	—	Colorado Springs, Colo.	33	20	10	1	—	3
Canton, Ohio	50	33	15	2	—	1	Denver, Colo.	112	60	31	9	6	2
Chicago, Ill.	670	351	200	62	24	23	Las Vegas, Nev.	25	16	6	1	—	1
Cincinnati, Ohio	163	95	47	13	3	5	Ogden, Utah	24	17	4	2	1	4
Cleveland, Ohio	212	126	55	15	8	3	Phoenix, Ariz.	158	102	28	7	11	2
Columbus, Ohio	88	39	35	5	5	6	Pueblo, Colo.	17	8	8	—	1	2
Dayton, Ohio	101	55	32	4	5	3	Salt Lake City, Utah	63	40	16	2	2	2
Detroit, Mich.	319	199	84	23	7	11	Tucson, Ariz.	88	51	23	6	5	—
Evansville, Ind.	44	35	6	1	—	5	PACIFIC	1,837	1,178	445	114	43	84
Fort Wayne, Ind.	46	30	12	1	3	4	Berkeley, Calif.	20	9	5	4	1	—
Gary, Ind.	26	14	4	—	2	1	Fresno, Calif.	75	43	24	3	4	2
Grand Rapids, Mich.	61	46	13	—	—	3	Glendale, Calif.	34	27	5	1	—	1
Indianapolis, Ind.	143	77	49	8	4	9	Honolulu, Hawaii	54	38	9	2	3	1
Madison, Wis.	32	24	6	—	1	7	Long Beach, Calif.	117	71	32	7	5	2
Milwaukee, Wis.	121	77	35	5	—	2	Los Angeles, Calif.	572	371	133	41	12	29
Peoria, Ill.	40	22	10	4	2	1	Oakland, Calif.	68	39	16	8	2	2
Rockford, Ill.	35	21	11	—	2	5	Pasadena, Calif.	33	25	6	—	2	—
South Bend, Ind.	34	21	12	—	—	1	Portland, Oreg.	163	111	33	6	6	14
Toledo, Ohio	90	52	31	2	3	1	Sacramento, Calif.	60	40	14	4	—	2
Youngstown, Ohio	65	44	17	—	2	1	San Diego, Calif.	119	73	29	10	—	6
WEST NORTH CENTRAL	737	489	152	34	23	34	San Francisco, Calif.	180	112	56	7	1	2
Des Moines, Iowa	56	34	11	5	—	—	San Jose, Calif.	66	42	14	6	—	—
Duluth, Minn.	20	16	4	—	—	1	Seattle, Wash.	175	105	50	9	5	8
Kansas City, Kans.	25	15	5	2	1	4	Spokane, Wash.	64	43	13	5	1	12
Kansas City, Mo.	124	81	27	6	5	6	Tacoma, Wash.	37	29	6	1	1	3
Lincoln, Nebr.	32	21	8	—	—	1	Total	13,233	7,986	3,460	809	455	643
Minneapolis, Minn.	97	68	17	7	2	5	Expected Number	13,083	7,902	3,481	829	390	547
Omaha, Nebr.	79	47	20	3	4	3							
St. Louis, Mo.	176	117	39	4	4	1							
St. Paul, Minn.	57	43	8	3	1	2							
Wichita, Kans.	71	47	13	4	6	11							

† Estimate based on average percent of divisional total

PLAGUE — Continued

cultures were drawn, and the patient was started on intramuscular streptomycin 450 mg every 12 hours.

On February 14 erythema was noted in the right axilla, and the patient was started on intravenous methicillin. On February 16 the lymph node aspirate and blood cultures obtained on the day of admission were reported to be growing gram-negative rods. Plague was considered the most likely diagnosis and methicillin therapy was discontinued. Tetracycline, 250 mg orally every 6 hours, was prescribed on February 18. The next day streptomycin was discontinued, and the patient was discharged on oral tetracycline. On February 21 the boy was readmitted to the hospital with a fever of 39° C, lethargy, and nuchal rigidity. A cerebrospinal fluid (CSF) cell count was 5,000/mm³ (predominantly polymorphonuclear leukocytes); no organisms were seen on gram stain. The CSF glucose was 30 mg%. A diagnosis of possible plague meningitis was made, and the patient was started on intrathecal gentamicin and the following intravenous medications: gentamicin 50 mg every 8 hours, sulfisoxazole 1.75 gm every 8 hours, and ampicillin 1.5 gm every 4 hours. On February 23 the ampicillin and sulfisoxazole were discontinued, and chloramphenicol 500 mg IV every 6 hours was begun. The patient was discharged on March 5 with no evidence of neurologic sequelae. CSF and lymph node isolates have been bacteriologically confirmed as *Yersinia pestis* by the Plague Branch, Vector-Borne Diseases Division, Bureau of Laboratories, CDC.

Epidemiologic investigation revealed that 3 days before the patient became ill he and a friend had found a dead coyote in the Sandia Mountains near Albuquerque. While skinning the animal, the boys noticed small insects in the animal's fur. The pelt was taken home, where it was handled by members of 2 households. The boy denied any insect bites and claimed that the lesions noted on his right finger and forearm were present when he skinned the coyote. Fluorescent antibody (FA) tests for *Y. pestis* performed on bone marrow and spleen specimens from the coyote were positive at the Plague Branch Laboratory; and, after repeated tests, *Y. pestis* was isolated and confirmed from the same material on March 11. Ecologic investigations are still in progress in areas visited by

the patient prior to his illness. Seven household contacts were tested for serologic evidence of plague infection and all were negative.

(Reported by John A Green, MD, family practice intern, Steve Saunders, MD, pediatric intern, W J Dean, MD, pediatric resident, John Ullrich, PhD, microbiologist, Alexander Kisch, MD, Associate Professor of Medicine, Alice Cushing, MD, Professor of Pediatrics, Bernalillo County Medical Center, University of New Mexico School of Medicine; Eva Wallan, MD, District Health Officer, Neil Weber, Program Manager, Rodent and Insect Control Section, Loris Hughes, PhD, Director, Microbiology Division, New Mexico Health and Social Services Department; Plague Branch, Vector-Borne Diseases Division, Bureau of Laboratories, CDC; and an EIS Officer.)

Editorial Note

The finding of an active, natural plague infection in a coyote is unusual. In laboratory studies conducted by the Plague Branch, investigators were unable to produce observable signs of illness in coyotes challenged with *Y. pestis*. Blood cultures, throat swabs, and body temperature readings were obtained every 8 hours for 10 days after challenge. The animals were afebrile and apparently healthy throughout the 10-day period, and all blood and throat cultures were negative for *Y. pestis*. However, all challenged animals developed plague antibody titers beginning the 10th day post-challenge.

Although thousands of wild carnivorous animals (predominantly coyotes) are handled each year by personnel involved in predator control and research projects in the plague-endemic western states, this documented human plague case is the first to be associated with a coyote. One previous case of carnivore-associated human bubonic plague resulted from contact with tissue and body fluids of a bobcat (*Lynx Rufus*) (1). Interestingly, in both the present case and the bobcat-associated case, the victims had wounds on their hands; while their companions (who participated in the skinning) had no such injuries and did not develop disease.

Reference

1. Poland JD, Barnes AM, Herman JJ: Human bubonic plague from exposure to a naturally-infected carnivore. *Am J Epidemiol* 97:332-337, 1973

BOTULISM — Alaska

On March 3, 1975, a 57-year-old woman from New Stuyahok, Alaska, developed nausea, vomiting, dysphagia, dysphonia, and diplopia and was evacuated by air to an area hospital in Kakanak, Alaska. On admission, she had slowly-reactive pupils, right arm weakness, and questionable unilateral blindness; a diagnosis of cerebrovascular accident was considered. Shortly thereafter, she suffered a respiratory arrest and died several hours later.

On the same day, a 53-year-old Eskimo woman from New Stuyahok developed nausea, vomiting, dysphagia, dysphonia, diplopia, and abdominal pain. The next day she was similarly evacuated to the hospital in Kakanak. Shortly after admission, she had a respiratory arrest and died.

Minutes after the death of the second patient, a 42-year-old Eskimo woman arrived at the same hospital from Manokotak, a village 75 miles southwest of New Stuyahok. The woman had a history of vomiting, abdominal pain, frontal headache, and a productive cough beginning on March 3 and dysphagia, diplopia, photophobia, and "facial numb-

ness" beginning on March 4. On admission, she had slowly-reactive pupils and depressed respirations. A diagnosis of botulism was made, and she was treated with trivalent ABE botulinal antitoxin. She was evacuated by air to a hospital in Anchorage where she underwent tracheostomy. She is currently improving.

Epidemiologic investigation in New Stuyahok revealed that at noon on March 2, the 3 patients had consumed portions of a fermented beaver tail. The first 2 patients developed symptoms 20 hours after consuming the beaver tail; but the 3rd patient, visiting from Manokotak, vomited 1 hour after eating the food. The beaver tail was prepared by placing the raw meat in a plastic bag, wrapping the bag in a wet cheese cloth, and setting it behind a stove for 2 weeks to ferment. Type A botulinal toxin was detected in the serum of the 3 patients and in left-over portions of the beaver tail.

(Reported by Massa Gumlickpuk, Annie Chocknok, Village Health Aides, New Stuyahok; Lucy Gloko, Village Health Aide, Manokotak; Douglas E Hutchinson, MD, Daniel J O'Con-

BOTULISM – Continued

nell, MD, Clinical Director, and Orris H Welch, Pharmacist, PHS Alaska Native Hospital, Kanakanak; Michael Davidson, MD, Acting Chief, Internal Medicine Service, Alaska Native Medical Center, Anchorage; Donald K Freedman, MD, Director, Division of Public Health, Alaska Department of Health and Social Services; Alaska Activities, Bureau of Epidemiology, and Enterobacteriology Branch, Bacteriology Division, Bureau of Laboratories, CDC; and 2 EIS Officers.)

MULTIPLY-RESISTANT SALMONELLA – New York

On October 4, 1974, a 56-year-old man with a history of hypertension and renal insufficiency developed aphasia and hemiparesis and was hospitalized in Kingstown, Jamaica, with a diagnosis of cerebrovascular accident. He was transferred by his family to a New York hospital on November 8, where *Salmonella heidelberg* was isolated from admission sputum, urine and stool. All isolates obtained were resistant to chloramphenicol, ampicillin, sulfamethoxazole-trimethoprim, cephalothin, carbenicillin, streptomycin, tetracycline, and kanamycin and sensitive to gentamicin, polymyxin, and nalidixic acid. As the patient was asymptomatic at the time these laboratory findings became known, no antibiotic therapy was given. During subsequent hospitalization the patient has remained afebrile and has not experienced diarrhea.

Editorial Note

This is the first outbreak of Type A botulism reported from Alaska. Of the previous 18 outbreaks reported from this state since 1899, 13 were Type E, 1 was Type B, and the remaining 4 were undetermined. Seven outbreaks have occurred in the past 2 years involving such foods as beluga (white sturgeon), seal, whale, salmon eggs, and whitefish. In one previous outbreak ascribed to beaver tail, the toxin type was not determined. Fermented beaver tail is considered a delicacy in parts of Alaska.

(Reported by Ronny E Leibowitz, RN, Roger Wetherbee, MD, Alma S Richmond, MD, Michael S Simberkoff, MD, and James J Rahal, Jr, MD, Division of Infectious Diseases, New York Veterans Administration Hospital, New York City; Alan R Hinman, MD, State Epidemiologist, New York State Department of Health.)

Editorial Note

The isolate obtained in this case is the 3rd multiple drug-resistant salmonella isolate reported to CDC (MMWR, Vol. 24, No. 1) in the past 3 months. All 3 isolates had identical antibiotic-resistant patterns and were acquired by persons while traveling outside the United States. The occurrence of these isolates emphasizes the importance of determining antimicrobial sensitivity patterns of salmonella isolates.

CURRENT TRENDS
INFLUENZA – United States

The number of reported pneumonia and influenza deaths in 121 U.S. cities remains above the epidemic threshold for the 9th consecutive week but has decreased markedly. Among the regions, only the New England and the Pacific remain

above the epidemic threshold.

(Reported by the Viral Diseases Division, Bureau of Epidemiology, CDC.)

The Morbidity and Mortality Weekly Report, circulation 41,500, is published by the Center for Disease Control, Atlanta, Ga.

Director, Center for Disease Control
Director, Bureau of Epidemiology, CDC
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The data in this report are provisional, based on weekly telegraphs to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

In addition to the established procedures for reporting morbidity and mortality, the editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials.

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